

VOLUME III, No. 5

SEPTEMBER, 1945

Peter Kalm's Notes on Colonial Industries

Prepared by CHARLES W. HUGHES

The following is the second of a series made from extracts from Peter Kalm's "Travels in North America." The Swedish naturalist, Kalm, was in America from 1748 to 1751. The foot-note numbers are tabulated at the conclusion of the article.

Peter Kalm's observations on mining and manufacturers were limited by his itinerary. His travels included the states of Pennsylvania, Delaware, New Jersey, and New York as well as Canada. In general he is a cautious and factual reporter. He does, however, speak of a New Jersey copper mine as the only enterprise of the kind. Yet the copper deposit at East Granby, Connecticut had been known since 1632 and was exploited by a company organized in 1709.1 Kalm tells us little of textiles. Flax, as he observed on two occasions, was grown in quantities suitable for domestic use.2 Of the manufacture of potash, a most characteristic industry of the frontier, he says nothing. He could have known little or nothing of coal, for it was only in 1750 (during his stay in this country) that the first mine was opened in Richmond, Virginia.3

Kalm comments on the limitations imposed on colonial manufactures by the mother countries. Salt was imported from France to Canada though the Canadians had formerly made it from sea water. Manufactures were lacking in Canada. "France will not lose the advantage of selling off its own goods here." The ore from the copper mine mentioned

Continued on page 45

Plastic Daguerreotype Cases

by Josephine H. Peirce

The word "Plastic" covering all its modern uses, almost makes us believe it is something very new in the industrial world. However, back in the 1850's daguerreotype cases were made of plastic, and you will find many of them in good condition today.

This particular plastic was the invention of Halvor Halvorson, who had come to the United States from Christiania (now Oslo), Norway in the early 1840's, and was at the time living in Cambridge, Mass.

Improvements were made in the cases from time to time by Mr. Halvorson and his brother-in-law, Samuel Peck of New Haven, Conn., and the names of both were used on the label which was put in the cases. It is found on the right hand side of the case, under the daguerreotype.

The composition of the main body of the case was gum shellac and woody fibers or other suitable fibrous material dyed to the color that was wished, ground with the shellac and between hot rollers so as to be converted into a mass, which when heated became plastic, so that it could be pressed into a mold or between dies and to take the form imparted to it by the dies.

"A new and useful improvement" patented by Mr. Halvorson in 1855 added great strength to the case and prevented it from being cracked or broken while in use. In his patent papers he stated:

"I usually apply to the face of one or to the opposite faces or both of the dies, a sheet of thick paper or thin pasteboard, so that when the dies are forced together to form the half of a case or box, the said paper or pasteboard shall be made to adhere to and line the entire surface against which it is pressed by the die . . . I have discovered that

The Chronicle

paper by simple pressure in the mold may be confined and made to adhere to the composition with a firmness which renders it impossible with any ordinary means to readily detach it from the part to which it is applied and if such paper be gilded and burnished previous to its application, the whole impression of the mold or such part of it on which the paper is placed may be thrown up so as to present a burnished gilded appearance such as cannot be produced without an immense deal of labor by the ordinary process of gilding and burnishing gold leaf. . . .

"By my process of gilding sheets of paper or other equivalent material, and burnishing the same and then applying such paper so gilded and burnished and with its burnished side directly against the surface of the die and compressing said paper upon a plastic composition of the kind above stated, not only can I produce a beautiful burnished gilt impression of the die, but such paper is made to combine with the composition in such manner as to add great strength to it and prevent it from being cracked or broked while in use. Such paper becomes inseparably connected with the material or composition as to render it impossible for any ordinary atmospheric changes of temperature to detach it therefrom. . . .

"A daguerreotype picture case or box formed of the shellac composition above set forth and strengthened by the application of paper to it in the manner above described becomes a very durable article in comparison to one made without the application of paper or its equivalent material."

This improvement took care of the case, but there remained some difficulty with the hinges, so Mr. Peck in 1856 invented a new method of attaching them. He mentioned:

"Hitherto the hinges have been fastened by rivets through the material or by some adhesive gum. The material of the case when cold is very brittle, and nearly thirty per cent of the cases were spoiled by breaking them in riveting on the hinges; and when the cases were put into use a slight twist or fall was liable to break off the hinge where it was fastened, thus spoiling the case."

He contrived a combination of metal straps or supports which were pressed into and surrounded by the material of a plastic case, when the plastic was still hot. This strengthened the case and formed a secure fastening for the hinges.

I have several of the cases, all in excellent condition, sturdy and strong. They vary in size from $2'' \times 2'''$ to $3\frac{1}{2}$ " x $3\frac{1}{2}$ " over-all. In each is a label

which gives patent dates, and states that it is a "Genuine Union Case, Improved." Some also mention the "Fine gilt and burnished hinge."

Among other things which Mr. Halvorson invented and patented were a loom for weaving haircloth; a mechanism for measuring cloth on looms; a machine for pegging boots and shoes; an improvement in preparing and hardening raw hides, and processes for distilling rosin-oil and alcohol. For household use he made improvements in the manufacture of candles and candle molds, lamps for coal-oil with two wicks, and trimmers for lamp wicks; roller shades with springs, and a process for making paraffin. During the Civil War he turned his talents to inventing projectiles for ordnance, explosive shells and explosive compounds.

Glaze Mill Stones

from Hervey Brooks Pottery, South End, Goshen, Connecticut

This machine, for it could have been so called one hundred and twenty-five years ago, when it was probably in use, is made out of a solid piece of native granite, chiseled roughly on the outside edge and tooled on the upper surface of the rim. The revolving grinding disc is apparently made from the same piece of granite, and the stone mason's work is so perfect that there is a full sized grinding area in the whole interior. The revolving piece has mounted in it a wrought iron forging with a hole in the center which engages a pin in the center of the base. The wooden pin is about seven inches long.

The mode of operation was to pour the pigment to be ground together with the required amount of water in the center hole, then the wooden pin was placed in the drilled hole of the upper member, and with this pin the disc was revolved, grinding the pigment in the water until it had worked its way across the stone and run out of the outlet. The apparatus is still in working order and the grinding disc can be easily revolved.

The above was described by John N. Brooks, great-grandson of Hervey Brooks to Lura Woodside Watkins. The machine described is illustrated on page 48 of this issue. For the above and the photographs on page 48 we are indebted to Mrs. Watkins.

Early American Industries

Landis Valley Museum

by H. K. LANDIS, CURATOR

The historic hamlet of Landis Valley is located on the Old Reading Road, Route 222 between New York and Washington, four miles north of Lancaster, Pennsylvania. The oldest house in the vicinity is dated 1728 and nearby there are many stone farm houses dated about 1750. The name of the village was derived from the prevalence of the name Landis in the neighborhood, the pioneer of that name settled near Lancaster in 1717 and his grandson located on Landis Run in 1750 at Landise's to farm his thousand acres of good cambrian limestone land.

The idea of a museum here had its origin with two Landis brothers, Henry and George, who began collecting about 1880 and continued as opportunity offered until 1924, when they retired from business and spent all of their time in enlarging their collections and library. At present they have accumulated over 250,000 pieces for the museum and 30,000 books in the reference library. In 1924 the barn on the home place was made into a museum and library and the collections opened to the public. However the collections grew and soon the residence, garage, shop and lawn were crowded with displays and more buildings became necessary. The first step was a trade, made with a local builder, of a house and lot in exchange for the removing of a large barn (built in 1814 of hand-hewn timber) to the museum property and rebuilding it for museum purposes. This added fifty feet by sixty-six feet of floor space, with a loft for storage. It was soon filled.

Wilbur K. Thomas then became interested in the museum and saw the need for still more exhibition space. After consultation with the Carl Schurz Memorial Foundation and the Oberlaender Trust the Trust agreed to build four more buildings at a cost exceeding \$35,000.00 and the Foundation agreed to maintain the plant. Work was begun in 1940, and ended May 17, 1941, when the museum was formally opened to the public by the Governor.

These buildings were of local limestone, heavy oak timbers, and of Muhlenberg design appropriate for the use intended. The general plan resembled a colonial tavern wagon stop with details appropriately carried out, such as the tavern kitchen with open fireplace, the summer house (now the gun house), the vehicle shed and the wagon and farm implement shed. The rebuilt barn, containing a meeting place

for local clubs, was labelled "Implements." Between the two sheds is an open court for the wagons stopping overnight at the tavern.

Wide stone-flag walks connect the buildings. The wagon yard is entered through an ornamental gateway. Out front are a hotel sign, mounting block, flag pole, parking lot and a grove of trees. A large cider press sits by an herb-garden.

The museum, which is now incorporated, has two curators and a caretaker. It is open every day to the public without charge. When funds are available museum publications are planned, and four more buildings for which the displays are already available. There will be: (1) a replica of the old Court House on Center Square, Lancaster, used in the early 19th Century; (2) a technical crafts building, 70' x 90'; (3) a decorative arts building of one hundred foot frontage; and, (4) a big open shed for large apparatus. The buildings will be of lasting construction.

Purpose: The collections show the arts and crafts, the lore and characteristics of the famed Pennsylvania Dutch who settled here two centuries ago. Their accumulations and prudent habits resulted in a rich heritage, today named antiques, but two generations of industrious antique collecting by outsiders and numerous auction sales have drained the country. Materials now collected as antiques represent the people of former days, their ingenuity, ability to provide for needs, their tastes and customs. It may be claimed that no local culture in these United States provides a more interesting subject for rewarding study and investigation.

William Penn brought these colonists from the region of the Upper Rhine and Canton Zurich, Switzerland. They were the Alemanni who in earlier days helped to conquer Rome in the Teuton-Goth invasion. Subsequent conquests by the Roman legions subdued these northern tribes and the Alemanni sought peace in religion. They opposed the influence of the Catholic Church and supported the work of her Waldensian, Anabaptist, Swiss Brethren, and Zwingli opponents. They finally joined Menno Simon who went south from Holland to preach his doctrines.

These Pennsylvania Dutch remained a religious community, the "plain" sects being known as Mennonites, Amish, Dunkers, Baptists, etc., each of which groups have uniform dress and adhere to early customs and even the Dutch dialect. The latter in itself is an interesting study.

Continued on page 46

it is a o men-

nvented

loth; a nachine nent in ses for use he candles wicks, s with During

venting

explo-

nd,

ed one t was ece of e edge . The from ason's inding ce has a hole ter of

long. gment int of 1 was , and

g the way The nding

ooks. Voodrated

d the Mrs.

The Chronicle



The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men and other workers.

WARREN C. LANE, President, Worcester, Mass.

Mrs. Frank D. Pierce, Secretary and Treasurer, Leicester, Mass.

> JOHN DAVIS HATCH, JR., Editor, 125 Washington Ave., Albany, N. Y.

Communications regarding the contents of The Chronicle should be addressed to the Editor; Suggestions for members and other matters either to the President or the Secretary-Treasurer.

MEMBERSHIP: Beginning January, 1945, regular membership will be \$2.00

Supporting Members contribute \$5.00 or more a year.

BACK NUMBERS of The Chronicle are available in some instances for fifty cents or one dollar, depending on rarity. The Index to Volume I is available for one dollar.

Annual Meeting

As this issue goes to press announcement comes of our Annual Meeting, which is to be held at Hotel Northampton (Wiggin's Old Tavern) in Northampton, Massachusetts, on Friday, October 19th, and Saturday, October 20th. There will be a Board Meeting in the morning before lunch on the first day and a speaker and program in the afternoon. Saturday morning will be an open session, followed by lunch, and in the afternoon an old time auction. Reservations for accommodations should be made to the Hotel as far in advance as possible. Detailed announcements will be mailed later.

The Secretary reports that an unexpected mailing problem arose with the Post Office in sending out the last two issues. There is a possibility that some members may not have received Number 4 of Volume III. Anyone who did not is urged to write to Mrs. Frank Pierce at Leicester, Mass.

Just what *are* early American industries the Editor has been asking himself? Mr. Sprague, in organizing Industries and in editing its publication, tried to stay with the tools of the industries, and the techniques and processes in making them, rather than with the objects themselves.

Now comes a question as to when early industries are no longer early. Should industries stop with the coming of the industrial revolution and the end of the handicraft era, or continue beyond that? Is mass production and the specialization of labor in making an object by several diverse craftsmen the era beyond which early industries should not go? These questions and others like them have bothered the Editor and other members of the Association and we would appreciate having any communications which our membership might write on this subject.

At the annual meeting of the New York State Historical Association at Cooperstown, home of the Farmer's Museum, the new President of the Association, Arthur C. Parker, defined the field of the New York State Historical Association as up to the beginning of the industrial revolution and "the fringes thereof". Just what is a fringe? and how uniform a guide may be established to measure it?

Our members will be glad to learn that the Index to Volume II is now in press. Much of this was completed by Mr. Sprague before his death. The present Editor added some and the job was completed by our Secretary, Mrs. Frank Pierce.

There are many advanced orders for the Index already in hand and mailings will be made promptly when the Index is off the press. Anyone else wishing the Index should send their order, and one dollar, to our Secretary.

The compilation by Charles W. Hughes from Peter Kalm's Travels in North America is completed with this issue. In Volume III, Number 4, we indicated volume and page citations through the text. We have gone back to the traditional pattern with the present issue, putting all foot-notes at the conclusion of the article. Mr. Hughes has also added quotations in the present issue from two other sources.

Early American Industries

Peter Kalm's Notes (Continued)

by Kalm had to be shipped to England because of a law forbidding copper smelting by the colonists.

STONE PIPES AND WAMPUM

The French colonists had learned the art of making stone pipe bowls from the Indians. The material used was a fine-grained stone (Pierre à Calumet) which was so soft that it could be cut with a knife. Such pipes were universally used by the common people. "A great part of the gentry likewise use them, especially when they are on a journey." ⁶

A strange industry indeed was the manufacture of wampum. This was carried on at Albany and the product was used in trade with the Indians. Wampum was made "by grinding and finishing certain kinds of shells and mussels. This is of considerable profit to the inhabitants." "This wampum is properly made of the purple part of the shells, which the Indians value more than the white part." 8

LEAD AND COPPER

Kalm was able to obtain a specimen of lead ore from a deposit near Montreal. "The Indians nearby melt it and make balls and shot of it." 9

The presence of copper in the Lake Superior region was known at this time. "The Indians say they formerly found a piece about seven feet long and nearly four feet thick, all pure copper." The ore body had been diligently sought, but only scattered fragments of native copper had been found. Kalm says that a copper mine "nine to twelve miles from New York on the side toward Philadelphia" was the only one yet worked in the colonies. Even though the ore had to be shipped to England to be smelted, the owners were able to make a profit. 11

IRON WORKS

Our author clearly realized the abundance of iron ore in Pennsylvania, for he says that there was sufficient to supply "not only England but almost all Europe." The most primitive methods were sufficient to obtain the ore. As a result the art of drilling and blasting was unknown or little practised. "For in many places with a pick axe, a crow-foot and a wooden club, it is obtained with the same ease with which a hole can be made in a hard soil." The ore was easily smelted, but such quantities of wood were required that wood must eventually command a high price in Philadelphia where there were sev-

eral furnaces.¹³ The ore, after being smelted, was worked up into bars by hammers operated by water power. This was the case in a forge which was located in the vicinity of Chester, Pennsylvania. "The bellows were made of leather, and both they and the hammers, and even the hearth were but small in proportion to ours." ¹⁴ Forges in New England were sometimes constructed of a special stone, a kind of serpentine containing asbestos. ¹⁵ The early iron-masters had much difficulty in finding suitable refractory material with which to build their furnaces.

The only Canadian iron works were located "three miles to the west of Trois Rivières." One building contained two larger and two smaller forges with a furnace for melting the metal near by. The "moor ore" was soft and could be found only six inches or a foot below the surface of the ground in an area two and a half (French) miles from the works. In the winter, sledges were used to transport the ore. Limestone and a clay marl were added during the smelting process. Charcoal was used for fuel. The wood supply was abundant because the surrounding forests "have never been disturbed except by storms and old age." Originally a private enterprise, the works had been acquired by the crown. In addition to cannon and mortars, stoves, kettles, and bar iron were manufactured. In spite of the fact that this enterprise was the only one in Canada, the expenses paid by the king exceeded the value of the product. This seemed strange to Kalm who noted that "the officers and workmen belonging to the smeltery appear to be in very affluent circumstances." 16

WATER AND WIND MILLS

Running water and the wind were the usual sources of power. Even small streams were turned to account in grinding grain or sawing logs. In his account of the merchants of Albany, Kalm says, "If their estates have a little brook, they do not fail to erect a sawmill upon it for sawing boards and planks." These boards were then sent to New York by boat during the summer. In Chester, Pennsylvania the destruction of timber resources was already apparent for our author notes that "the woods and forests of these parts had been very roughly treated." Yet these were small sawmills with but a single saw. In this region ditches were dug "almost horizontally" to conduct the water to the (overshot?) wheel. At a mill at the "Isle of Madeleine" on the St.

mailing out some of Vol-

in orcation, es, and rather ustries

the end at? Is bor in en the et go? thered citation ations being the et go?

Assoof the
up to
"the
how
re it?

The com-

ollar,

was

rom comer 4, the tern the

lded

ther

Peter Kalm's Notes (Continued)

Lawrence, the current was powerful enough to turn the water wheel although there was no dam. Kalm examined this mill with care and wrote an account of its peculiarities. The millstones were not monolithic, but were built of eight segments held together by a heavy iron strap. The lower stone was of local origin, but the upper had been imported from France. The hopper into which the grain was poured was agitated by the corners of a square block of wood which rotated with the axle of the millstone (pinion axle). "The wheels and axle were made of white oak, but the cogs of the wheel and other parts of the machinery were made of the sugar maple or wild cherry." 19 The cogs and "pullies" of a mill in Wilmington, Delaware were of white walnut, the axle again of white oak.20

A large stone mill at Montreal was owned by the priests. A fourth of the grist went to them and a third to the miller. (Evidently the miller received a third of the quarter received by the priests. Otherwise the poor farmer would have only five twelfths left which seems impossible.) No one else was permitted to erect a mill on the Isle of Montreal, nor were the people allowed to take their grain elsewhere. The three waterwheels of this mill turned three pairs of stones. Kalm again notes the kinds of wood employed. "Bois dur" (hornbeam) or sugar maple might be used for the cogs of the wheels. The former "was considered the hardest wood there." 21 Even in the village of Lorette (three miles west of Quebec) which was inhabited largely by converted Huron Indians there was a noisy little river which was utilized to operate a sawmill and a flour mill.22

Kalm's notes on windmills concern only the northern borders of the colonies and Canada. Yet we know that the Dutch settlers used windmills not only for the more usual purpose of grinding grain but also to drive a saw.23 On the outskirts of Montreal were two windmills which "instead of having thin boards for wings . . . had linen, which was removed after a grinding." 24 Canadian windmills (observed between Montreal and Quebec) "were generally built of stone, with a roof of boards, which together with its wings could be turned to the wind." 25 Even military establishments like Fort St. Frédéric (Crown Point) might have windmills to grind their flour. The mill there was strongly built and served also as a fort. "At the top of it are four or five small pieces of cannon." 26

Concluded on page 49

Landis Valley Museum (Continued)

This word "Dutch" is the English version of the German "deutsch" and is pronounced "deitch" in the dialect. The term refers to the rural population only, and the descendants of the Alemanni. The Germans coming from other parts of that Empire and settling in the cities differ in ethnological characteristics, customs and culture from the rural settlers and are known as Pennsylvania Germans. Thus we have the Pennsylvania German Society, the Pennsylvania German Folk Lore Society, etc. In the neighborhood of the cities of Bethlehem, Allentown, Reading, Lebanon, Lancaster, York, and so forth, will be found the Pennsylvania Dutch farmers.

Collections: The Landis brothers in collecting have sought to have each object in itself have some point of interest. Nothing is neglected, even hex marks, church books, powwow books, fraktur, school books, on up to Conestoga wagons or mammoth cider presses. Complete shop and store and mill equipment has been acquired and awaits the building space in which to display them. China, glass, pewter, tin, pottery, tole, brass, bronze, wooden vessels, and leather, furniture, decoration, wall pictures, human hair, etc., are to be seen in quantity. It is the opinion of the curators that the variations of a type are as interesting as the type itself.

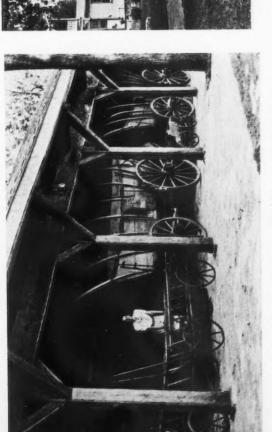
The library is represented in larger sections by North American Indians, about 3,000; Natural History, birds, etc., about 2,000; Americana and early travel and exploration, about 1,500; church books, about 3,000; school books, 2,000; literature, 1,100; biography and early American humor, 800; dictionaries, cyclopedias, etc., 1,000; museum subjects, 500; also books about books, folk lore, state histories, about three hundred large Bibles, reports, technology, historical society proceedings and almanacs.

We cannot summarize the collections with exactness, but in an over-all sketch should note several hundred baskets, many stoves, musical instruments, butchering equipment, fancy iron forging and wagon ironing, wood working, blacksmith tools, weaving, farm machinery, copper smith tools, firemen's hand pumpers, etc., rockaways, democrats, sulkies, fanning mills, fishing nets, over six hundred guns, three hundred and fifty pistols, four hundred powder horns, fabrics by the roomful, small things in a hundred cabinets, hundreds of wall maps, Currier prints, samplers, etc., etc., etc.

The writer would like to take this opportunity to say a word in favor of adopting the general policy

Continued on page 49

Stone Mills, etc; Barn Museum, Residence to the left.



Wagon Shed, Conestoga Wagons, Work Wagons and Attendant.



Exterior Exhibits: Cider Press, Herb Garden.

Rear of Tavern Showing Bake Ovens, Arbor, Gun House and Walks.

of the ch" in ulation. The Empire I char-

Empire
I charral setThus
PennIn the
ntown,
forth,

g have e point marks, books, cider pment ace in r, tin,

r, tin, s, and numan pinion are as

ns by l Hisearly books, l,100; ction-, 500;

, 500; tories, ology,

everal nents, vagon ving, hand nning three

wder in a irrier

unity oolicy



Pottery building and farm house of Hervey Brooks at Goshen, Connecticut. (1937).



Two views of pigment grinder described on page 42.



Early American Industries

Peter Kalm's Notes (Continued)

LIME BURNING

Lime burning was practised in the Hudson Highlands where a bluish gray limestone was found.²⁷ However, oyster shells furnished New York with so much of its lime at this time that less was shipped to that city from the kilns on the Hudson. Two kilns near Montreal were eighteen feet high and were constructed of a "grey infusible limestone" lined with granite.²⁸

SALT SPRINGS

Kalm relates that Bartram, the naturalist, had seen springs from which the Indians made salt by boiling down the water. At Albany he heard a similar tale of salt springs where the Indians made salt in copper kettles.²⁹ Though the Canadians had formerly made salt by evaporating sea water, they no longer did so but were forced to import their salt from France.²⁰

PETROLEUM

Petroleum was sought only as a healing agent. It was gathered by the Indians from the surface of a small lake. In the spring the Indians burned the surface clear of oil-soaked leaves. The bottom of the lake was then punctured with poles so that the oil floated to the surface of the water where they gathered it.³¹

TAR AND PITCH

The manufacture of common tar was an important business in Carolina. Dead trees were used to make "black tar." "Green tar" was made from live trees from which part of the bark had been removed so that the resin oozed out. After waiting a year, they cut these trees down and extracted the tar. Tar boiling was carried out in the same way as in Finland. In order to make pitch, a hole was lined with clay. The hole was filled with tar and a fire made around it till the tar reached the proper consistency. In Canada (Bay St. Paul) tar was made from the red pine. Only the roots were used with about six feet of the lower trunk. The collection of resin by removing a section of bark from one side of the trunk was not practised here. The same was an important to make the same was an importa

COOPERAGE

At the Isle of Orleans our authority observes that ash was the wood which was preferred for

barrel hoops though thuja (arbor vitae), birch, and wild cherry might also be used.³⁴ While sailing from Trenton to Philadelphia, Kalm observed that the flour barrels in the cargo were "made of white oak, but the hoops were of hickory, and the ends of pine." ³⁵

A PAPER MILL

Kalm was a guest at the country house of Mr. Cock nine miles north of Philadelphia. This gentleman was the owner of a "paper mill on a little brook" which brought in fifty Pennsylvania pounds as rent. "All the coarser sorts of paper were manufactured in it." ³⁶

All the following notes refer to "Peter Kalm's Travels" edited by Adolph B. Benson unless another source is specifically indicated.

¹ Rickard, A History of American Mining 6. ² I 335, II 493. ³ Rickard, op. cit. 15. ⁴ II 499. ⁵ II 536. ⁶ II 498. ⁷ I 343. ⁸ I 129. ⁹ II 524. ¹⁰ II 524. ¹¹ II 621. This appears to be a reference to the mine at Hanover, New Jersey. ¹² I 159. ¹³ I 51. ¹⁴ I 88. ¹⁵ I 157. ¹⁶ II 420. ¹⁷ I 343. ¹⁸ I 282. ¹⁹ II 407. ²⁰ I 221. ²¹ II 532. ²² II 462. ²³ Clark, History of Manufactures in the United States I 174. ²⁴ II 537. ²⁵ II 417. ²⁶ II 392. ²⁷ I 330. ²⁸ II 527. ²⁹ II 609. ³⁰ II 499. ³¹ II 608. ³² I 147. ³³ II 492. ³⁴ II 496. ³⁵ II 637. ³⁶ I 96.

Landis Valley Museum (Continued)

of establishing local museums wherever practicable for the preservation of the relics of early life so as to be available for study. Libraries have had their day; they have buildings and books but no one has taken the trouble to encourage the habit of study and research from original material. Very little in addition to entertainment and amusement attracts the general reader.

Let us see what museums can do to enliven the dormant desire for knowledge and understanding. Let us consider the preservation of antiques that had their influence on the lives and prosperity of our ancestors. How did they do it, what did they do it with, and why? Those queries should be answered by the museum. Again, a collector puts his spare time into getting together many interesting things and then passes on, and the auctioneer scatters his treasures broadcast. They should go into the local museum for preservation. Many collections which are not replaceable of Indian relics, and minerals from since abandoned mines, are thus lost to the coming generations. Let us give this matter serious thought and perhaps there will be many museums planned similar to the one above described.

Communications

From Anna M. Scorgie, Harvard Historical Society:

"In studying the house built about 1758 by Peter Snow, blacksmith (specialty axes), I found what appears to be an old smithy hearth in a closet on the rear of the center chimney, the 'closet' having access to out of doors. Is there anyway I can ascertain if this is really an old hearth?

"In Snow's inventory (1760) it appears that he used 'sea coal'. Was this customary? The black-smiths of my youth used applewood."

From Mary E. Eldredge, Curator East Hampton Historical Society:

"Under Communications in April 1945 Chronicle, Vol. III, no. 3, Paul H. Lyman asked for information about using cat-tail leaves. In the Yankee Whaler by Clifford W. Ashley, page 97, is:

"casks had to be opened and 'flagged', that is rushes were placed in the seams to provide a sort of caulking which prevented leakage."

There were two species of cat-tail:

The common or broad leaved cat-tail (Typha latifolia) and the narrow leaved cat-tail (Typha augustifolia).

The former has broad leaves and cat-tails an inch through, the latter, narrow leaves and cat-tails less than 3/4" through. Perhaps it was the latter to which Mr. Keeler referred on page 27 of the same issue. It is interesting to note the difference in the two species when they flower in June and July."

From F. Hal Higgins, Oakland, California:

"In making a study on California Plows I found the following information regarding bulldozers which I thought might be pertinent:

There is a lot of argument still going on as to where and how the word and tractor attachment known as the "Bulldozer" originated. The trail is fairly plain as to the tractor. The attachment was never anything of importance until it got the power and weight of a tractor behind it to shove and cut earth, trees and brush to finally become an outstanding new tool of World War II. Holt employees and engineers still living can recall putting the first bull-

dozer on a steam wheel tractor in 1903 or 1904, a year or two before they built their first Caterpillar tractor to start a farm and heavy construction revolution with the crawler type tractor.

"This first bulldozer put on by Holt's men, recalls Dan Gilmore, former Sales Manager, was merely a wooden plank bolted onto the front of the wheeled tractor to shove tin cans and other city dump material into ditches and holes in a vacant lot on which Holt was getting ready to build another factory building. It was not very efficient or startling enough to get the company officials or advertising department out to photograph it. Bill Figgins, another Holt employee who worked in factory and service for many years and is now retired in Stockton, California, can recall using another plank bulldozer he built onto a Holt Caterpillar about 1910. This he used to clean the mud off the streets of the city after a winter flood, he says. Best Company engineers and service men sent East to introduce the Best crawler tractors had many problems of application to work out. Fred Lewis, then a Best service engineer, recalls drawing plans and building the first bulldozer for a tractor east of the Rockies for filling Milwaukee dump waste material into canyons and ditches in South Milwaukee. This was about 1921, he thinks, and the idea worked so well, he sold the tractor and then handed the plans to LaPlant Choate of Cedar Rapids for further development into their modern bulldozer of today.

Frank Nikerk, ex-railroad civil engineer with years of railroad and highway and street construction engineering in the U.S., traces the word and idea to the oxen team grading on early western railroads. Oxen, of course, gave the word "bulls" to the thing. The old "Mormon Board", as it was called in railroad construction, was nailed onto the ends of shafts that projected ahead of the team of oxen pulling a slip, or Fresno, scraper. This board in front of the team pushes the loose dirt over the edge of the 'fill' and saves the slow-moving oxen from spilling over and taking an extra five or ten minutes to get back to the spot where another load of dirt is to be scooped up for hauling to the edge of the fill. These animal-power bulldozers of the railroad era were advertised by railroad equipment builders as early as 1800, according to an old Western Wheeled Scraper Co. "Announcement."

04, a pillar volu-

ecalls ely a eeled mat on factling ising antockbull-910. f the pany duce s of Best ding ckies into

with trucand stern ulls" was the team This dirt ving te or other

the s of uip-

an ent."

was well,